### Surveys suggest most women orgasm by penetration without simultaneous stimulation of the clitoral glans

#### LLH

December 3, 2019. Last modified on June 1, 2022.

#### Abstract

It is widely claimed on the internet, especially by 'sex experts', that most women don't reach orgasm by penetration and that they need simultaneous clitoral stimulation. While true that most women don't reach it most of the time, it does not mean that most women find it difficult at all. For if both the woman and man gets an orgasm equally easily, and intercourse ends after the man climaxes, then the woman could be expected to orgasm only half the time. Other reasons for absent orgasm could be being distracted, tired, lack of foreplay/arousal etc. So it's possible that for a woman that don't climax that often, it is still quite easy when done right under the right circumstances. In the biggest scientific survey ever conducted where the question refers to orgasm by penetration without stroking the clitoris at the same time, 68% of the 8000 women reach orgasm at least 'somewhat easily' by penetration. I also discuss what I believe are all large sample studies in the scientific literature, on orgasm with penetration. I conclude that most women are best described as reaching orgasm by penetration and most likely without difficulty.

#### 1 Introduction

It is widely claimed on the internet, especially by 'sex experts', that most women don't reach orgasm by penetration and that they need concurrent clitoral stimulation. However, sources are usually not given, and when they are given, it often just refers to a book or article where it is simply stated without relying directly on a survey. An example is by Professor and sex researcher Kim Wallen, who states, without a reference, in the peer reviewed journal Archives of Sexual Behavior: 'of all the sources of orgasm induction, intercourse is the least efficient, with less than 20% and possibly as few as 6% of women achieving orgasm from penile stimulation alone.' [1] Worse yet, other scholarly work cite Wallen as a reference [2, 3]. Furthermore, when studies are given as sources, they are often misrepresented, so as to reduce the number of orgasm by penetration. Here I give over 10 such examples.

Professor Laurie Mintz, who is a 'sex researcher and educator' and who teaches 'human sexuality to hundreds of college students a year' [4], says '15 percent to 30 percent of women say they orgasm from intercourse alone' [4], but the source [5] for 15 percent refers to how many women gets most of their orgasms from it. The same survey shows that 12% gets most of their orgasms from receiving oral, so according to her logic only 12% of women reach orgasm with oral.

In another article [6] Mintz states without a source that 'About 95 percent of women need clitoral stimulation to orgasm'. Though context shows she bases this of how women reaches orgasm most reliably. Mintz further states [7] 'one recent study found that only about 18 percent of women orgasm from penile thrusting alone'. But this study [9] actually says 18 + 36 = 54% orgasm without clitoral stimulation, and it is not specified whether the clitoral stimulation refers to foreplay or intercourse. She repeats

this misrepresentation in a peer reviewed journal [8].

Sex researcher and Professor Elizabeth Lloyd states in an interview 'today, it's assumed as fundamental that women should have an orgasm when they have intercourse ... There are only about six and a half percent of women who reliably have orgasm with no hands, and everybody else doesn't.' [10] Lloyd contradicts her own book, where she investigated all (very few) relevant studies, and found that 'the numbers for orgasm all of the time with unassisted intercourse generally fall around the 15% to 35% range' [11, p. 112]. See also [12] where Lloyd says 'Very few women can climax through intercourse alone, but in Hollywood, that 8 percent [of women] is portrayed as 100 percent'. Neither 6.5% nor the 8% figure can be found in the book.

Michael Castleman states on Psychology Today that, according to Lloyd's [11] analysis of 32 studies on female orgasm with intercourse: 'About half of women sometimes have orgasms during intercourse. About 20 percent seldom or ever have orgasms during intercourse. And about 5 percent never have orgasms' [13]. This is misleading, as he includes terms like 'usually' in 'sometimes'. To see this, check the tables in [11, pp. 28-34].

On the website for Scarleteen dedicated to sex education, Dr. Drew Pinsky says "She [Lloyd] analyzed 32 studies, conducted over 74 years, of the frequency of female orgasm during intercourse. When intercourse was 'unassisted,' that is not accompanied by stimulation of the clitoris, just a quarter of the women studied experienced orgasms often or very often during intercourse" [14].

Pinsky makes it sound like there were many studies that support this statement. Among the studies for unassisted intercourse discussed by Lloyd, there is only one study that can support his claim for 'often'. This is the Hite report [15], which I show to be unreliable in section 3.1. What Lloyd found was that 'the numbers for orgasm all of the time [emphasis added] with unassisted intercourse generally fall around the 15% to 35% range' [11, p. 112].

From the peer reviewed literature we read 'Fisher (1973) reported that ... only about 20% indicated that they did not require additional clitoral stimulation during intercourse' [16]. What Fisher actually

found was that "on average, 30% of the time women 'require direct stimulation [of the clitoris] to give them the final push necessary to reach orgasm' (1973, p. 193). A full 35% of women 'said they require such final direct manual stimulation 50 or more percent of the time to attain orgasm' while 'only 20 percent of the women said they never require a final push from manual stimulation to reach orgasm'" [11, p. 26]

Lavie [17] in her PhD dissertation misrepresents Fisher in the same way as [16].

In the scientific literature we further find 'only 47% reported a lifetime ability to reach orgasm through intercourse' [18]. Their reference [19] for the 47% figure refers to how many has had an orgasm without clitoral stimulation (it doesn't say simultaneous). So this can refer to clitoral stimulation during foreplay or include virgins' answers for masturbation. Their own reference further gives that 57% has had an orgasm solely by penile movements in the vagina — a more appropriate number to cite. But even this figure is most likely too low for orgasm by penetration, as discussed in section 2.1.1.

Next we find in the peer reviewed literature that 'When asked specifically about vaginal intercourse without simultaneous clitoral stimulation, the self-reported lifetime ability to experience an orgasm is even lower, ranging from 8% to 55%' [20]. But no appropriate 8% figure is in their references.

In the survey by sexologist Dr. Delvin, 25% [21, p. 11] of the women 'usually climax from intercourse alone', but Delvin reports both here [21, p. 2] and elsewhere online that: 'Over 80% of women could not reach orgasm through intercourse (penetration) alone'. But the <20% figure refers to how many usually don't need clitoral stimulation to orgasm [21, p. 12]. So this question does not necessarily refer to orgasm during intercourse, or clitoral stimulation during intercourse. Virgins, lesbians and women who do not currently practice intercourse could thus answer for other sex activities (the survey was 'open to women of any sexual orientation' [21, p. 4]). More problems for this survey are discussed in section 3.1.

I can give more examples like these (see e.g. [22, 23, 24]), but I will now go on and show that most women do in fact orgasm by penetration.

## 2 Studies on how many women orgasm by penetration

Here we take a look at how many women climax by penetration.

#### 2.1 IFOP 2015 and 2014

In 2015 the Institut français d'opinion publique (IFOP), an international polling and market research firm [25], conducted a survey [26] for CAM4. IFOP says the survey is 'in compliance' with scientific principles. Through anonymous questionnaires they asked 1000 women aged 18-69 from 8 countries, totalling 8000 women. For each country the sample is representative of the female population, at least with respect to age, profession, matrimonial status and region. This is the biggest scientific survey ever where the question refers to orgasm by penetration without stroking the clitoris at the same time.

In this survey 68% say they orgasm at least 'somewhat easily' from penile-vaginal penetration without stroking the clitoris at the same time. To get the 68% figure you need to go to IFOP's French site [27]; in the english document [26] the numbers are given separately for each country. The next category after 'somewhat easily' is 'with some difficulty'. The questions are 'Do you achieve orgasm when...?' 1) 'Your partner penetrates your vagina with their genitals' and 2) 'Your partner penetrates your vagina with their genitals while stroking your clitoris'. This means that in 1), stroking the clitoris against the body should also be excluded (it doesn't say it has to be by hand).

IFOP did a similar survey they year before, 2014 [28]. They asked 1000 French women and found that 70% climax at least somewhat easily by penetration, without stroking the clitoris [28, p. 24].

#### 2.1.1 Reliability investigation

The IFOP 2015 survey [26] also shows that 59% of those who have had anal sex has also orgasmed from it. You may think this is absurd, but they don't have separate questions here for with or without clitoral

stimulation. In other words, this high number surely includes clitoral stimulation.

Since the survey by IFOP was paid for by the webcam pornography company CAM4, the reader may think that it is suspect. Maybe they somehow tried to get a high number for orgasm with penetration to show that women's orgasms in pornography are real. But the survey shows that many women do fake orgasms [26] and by reading the French survey report [27], we find that IFOP speaks quite negatively on penetration. At least four times they criticize that many focus on it ('phallocentrée'), and say that it hinders women from reaching orgasm.

CAM4 is a French company, so if the survey is corrupt, they would not want to emphasize that French women (thus their own webcam women) fake the most of all the countries, but they do. Likewise, they would not want to show that the most sexually permissive country, Netherlands, orgasm the least with penetration (56% easily) while the most religous, Italy, climax the most with penetration (74%) [26]. A motive for CAM4 to pay for this survey may have been to find out about women's interest in watching webcam pornography (only accessible in French [29]). Taken together, I therefore conclude that the corruption hypothesis is far fetched.

To investigate the IFOP 2015 sample for reliability, I have compared some numbers in IFOP with others studies (Table 1). The idea is, if IFOP gives way too high figures for orgasm by penetration (e.g. if the respondents are more sexual than in other studies), then we would expect other figures like ever had an orgasm to be unusually high as well. However, most of IFOP's numbers agrees quite well with other studies (Table 1), suggesting reliability.

The low number (57%) for vaginal orgasm in Fugl-Meyer et al. [19] could be due to the phrasing of the question: 'Have you ever had an orgasm solely through the movement of the penis in the vagina?' [34]. Here 'solely' can be interpreted to mean no other sexual stimulation — including foreplay or clitoral stimulation before intercourse, as shown in Appendix A.

Shirazi et al. [35] also gives a low number for vaginal orgasm. But they also asked whether they ever had climaxed from intercourse in general, i.e. when

**Table 1.** Comparison between IFOP (2015) with other large sample studies.

	IFOP (%)		Other studies	
	Average	US	Corresponding (%)	Country
Ever masturbated	79	81	78 [30]; 78 [31]; 82 [15]; 91 [32]	US; US; US; PT
Ever had orgasm	94		97 [19]	SE
Ever received oral	87	88	86 [33]	US
Ever had anal sex	41	48	44 [33]	US
Ever climax from penetration + simult. clitoral stimulation	93	91	90+[9]; 86 [35]; 86 [37]	US; US; US
Ever had vaginal orgasm during intercourse	89 (range 83-94)	90	57+[19]; 63 [35]; 61-80 [37]; 68+[38]; 67+[39]; 78 [40]; $83 [41]; 82+[9]; \leq 90 [42]$	SE; US; US; CZ; US; CZ; CZ; US; UK
Orgasm last sexual encounter	76 [43] (range 71-85)*		69 [44]; 75 [45]	AU; FR
Never climax same time as partner	16		11 [41]	CZ
'Rarely' climax same time	21		24 [41]	CZ

The figures for anal in IFOP are for those who has had a sexual encounter with a partner, in [33] they are for those who has had intercourse. Vaginal orgasm here means orgasm triggered without concurrent clitoral stimulation. The pluses signify that the study had a question similar to what is in Appendix A, except for [9], where it refers to orgasm within the past year. Orgasm at the same time in [41] only includes intercourse.

\*In the 2014 IFOP survey, 63% orgasmed during their last sexual encounter [28, p. 13] yet 70% say they reach orgasm at least somewhat easily from penetration without stroking the clitoris at the same time.

clitoral stimulation was unspecified. This percentage was 78, which is considerably lower than most studies. In Lloyd's collection of 32 studies on orgasm with intercourse, she estimated that 5-10% [11, p. 36] never climax during intercourse. Furthermore, a large Finnish study [36] gives these numbers as 9% and, for another year, 4-7%. This suggests Shirazi et al. [35] underestimate the true prevalence of vaginal orgasm.

The study [37] consists of university students. They are asked twice whether they have had a vaginal orgasm with seemingly no difference in meaning of the question. For one of the questions the number is 61%, in the other it is 80% [37, pp. 47-48]. The author of the study suggests this discrepancy is due to students who rarely orgasm are uncertain.

In [38] the question was 'Please indicate the percentage of penile-vaginal intercourse which led to orgasm elicited solely by coital movements with the current partner?' where 'never' was defined as less than 5%. Here again 'solely' may preclude sexual activities like foreplay or clitoral stimulation before

intercourse, as shown in Appendix A. This survey was posted in the media and on the page of a Facebook wall, which 'primarily consists of subjects willing to regularly participate in various evolutionary psychology studies' (ref 15 in [38]). They claim the sample (7,450 women) should be considered non representative.

The study [39] consists of nurses and 2.6% have been removed from the sample since they can't reach orgasm no matter what. The alternatives given to reach orgasm are confusing. While 67% agree they use the technique 'Sexual Intercourse/Vaginal Penetration Only' to reach orgasm, there are two alternatives for which I don't know what the difference is: 'Manual Stimulation/Clitoral Area with Sexual Intercourse' (84%) and 'Sexual Intercourse/Manual Stimulation/Clitoris During Intromission' (69%). This is relevant if some respondents thought the former could include clitoral stimulation during foreplay. They also have e.g. that 75% use 'Sexual Intercourse with Vaginal Penetration/Male Above' to reach orgasm.

Among the studies on penetration in this section, only [19], [40], [41], [9] and both IFOP surveys have used sampling techniques that give nationally representative samples, which should be given more weight.

The figure of 89% for ever having a penetration orgasm in the IFOP survey is somewhat higher than the nationally representative samples in [40], [41], [9]. Age and country differences and the fact that in [9] it refers to orgasm within the past year (some have sex only a few times a year, so not enough tries to climax) may explain this difference.

#### 2.2 Burri et al. 2010

In Burri et al. [42] the question was 'How difficult is/was it for you to reach orgasm through penetrative sex without any other stimulation?' Some may have excluded prior clitoral and foreplay stimulation here, which could help them orgasm with penetration (see Appendix A). The alternative questions makes it clear the question refers to intercourse. The response scale is from "'Impossible' (1) to 'Not difficult' (5)". This question was asked of 1,741 British twin women, but results only reported for those that said they had a G-spot (56% of them). The numbers for (4) and (5) together is 65% and for ever reaching it is 90%. Those that reported a G-spot 'were slightly more likely to have an orgasm through penetrative sex by partner than women who did not report having a G-spot'.

#### 2.3 Herbenick et al. 2018

In Herbenick et al. [9], 54% of the nationally representative sample of  $\sim 1,000$  women report that they are 'best described' as not needing clitoral stimulation to reach orgasm during intercourse. It was not specified if the clitoral stimulation had to be during intercourse or foreplay. If they had asked about simultaneous clitoral stimulation, we thus expect the percentage to be higher than 54%.

#### 2.4 Fisher 1973

Another study of interest is that of Fisher, with 285 women. I don't have direct access to this study, but Lloyd [11, p. 26] gives details on it. Here I quote her:

"on average, 30% of the time women 'require direct stimulation [of the clitoris] to give them the final push necessary to reach orgasm' (1973, p. 193). A full 35% of women 'said they require such final direct manual stimulation 50 or more percent of the time to attain orgasm'"

These numbers probably are for women who ever climax during intercourse. It appears then, on average, 70% of the time it was not needed and 65% of the women didn't need it the majority of the time. This interpretation appeared in a peer reviewed journal [46].

#### 2.5 Circumcised women

Finally we investigate how many circumcised women climax with intercourse. In a study [47] 827 cut women from Nigeria where asked: 'Do you reach orgasm during sex?' (always or usually = 1, rarely or never = 0)'. Here 66% chose alternative 1.

Maybe the reader thinks some cut women can still have orgasms from the clitoral glans during sex. But circumcision that removes only the prepuce is very rare [48, 49]. Moreover, in a study [50] on 453 cut women (type II and III) who underwent surgical repair to restore the clitoris, only 2.2% could have clitoral orgasms prior to surgery. Since these women attempted surgery, it is likely to be a lower number than cut women in general. But almost all female circumcision should definitely heavily impair the ability to climax from the clitoral glans, since it is almost always at least partially removed or has been sown under. Another study [51] on 195 cut women also found that most of them usually climax during intercourse. These results are consistent with the third study [52] I found as well, where it is stated:

'In a study conducted over a 5-year period, the author interviewed over 300 Sudanese women and 100 Sudanese men on the sexual experience of circumcised and infibulated women. Sudanese circumcision

involves excision of the clitoris, the labia minora and the inner layers of the labia majora, and fusion or infibulation of the bilateral wound. The findings of this study indicate that sexual desire, pleasure, and orgasm are experienced by the majority of women who have been subjected to this extreme sexual mutilation, in spite of their also being culturally bound to hide these experiences. These findings also seriously question the importance of the clitoris as an organ that must be stimulated in order to produce female orgasm, as is often maintained in Western sexological literature.'; and 'nearly 90% of all women interviewed said that they experienced orgasm (climax) or had at various periods of their marriage experienced it. Frequency ranged from always to rarely.

# 3 Climaxing relatively easy must imply high frequency of orgasm?

A relatively low frequency of orgasm does not mean that it can't be quite easy to reach it under the right circumstances. If both the woman and man gets an orgasm equally easily, then the woman could be expected to orgasm only half the time, given that intercourse usually ends after the man climaxes. There are many more reasons why how often they climax may be low, even though it may be quite easy to do when done right under the right circumstances. These reasons are e.g. being tired, stressed, distracted, not in the mood/lack of arousal, lack of foreplay, lack of clitoral stimulation during foreplay, vaginal dryness (common among older women), problems with erection (common among older men), wrong technique, pain or being drunk. Sometimes orgasms may have been absent because it didn't work with a particular partner, but worked with someone else.

Furthermore, one study [53] includes comments by women saying they often are not interested in trying to climax. The women who find orgasm important also had orgasms more frequently.

## 3.1 How often women climax by penile-vaginal penetration

In this section we take a look at how often women orgasm during intercourse without simultaneous clitoral stimulation. For one study [20]  $(n \sim 1200)$  the women have a mean frequency of reaching orgasm at 2.64 on a 1-5 likert scale, where 1 is never and 5 is always. From this we estimate that they climax 41% of the time on average. In a primarily college sample (n=835) they climax on average 51% of the time and 59% reach orgasm half the time or more [37, p. 107]. In Herbenick et al. [9] 52% had an orgasm at least 50% of the time in the last year (n = 633). Another study [44] found that 50% of the  $\sim$ 1700 women who had intercourse without any manual or oral stimulation had an orgasm last time they had sex. It's likely the number would have been higher if it had included clitoral stimulation during foreplay.

Shirazi et al. [35] (n = 1478) have an average orgasm frequency of 21-30%. In section 2.1.1 we commented that the number by Shirazi et al. for intercourse orgasm is significantly lower than most studies.

Brody et al. has done two studies in the Czech Republic where 27% [40] (n=917) and 36% [41] (n=770) reach a vaginal orgasm at least 50 or 51% of intercourse occasions. Note that in Brody's studies they are asked how many of their occasions that result in a vaginal orgasm, as opposed to how often they reach it if they don't stimulate the clitoris (the latter may be higher). In another study [38] of 7450 Czech women 36% reach 'orgasm elicited solely by coital movements' at least half the time. Note again that this wording is ambiguous, see Appendix A.

In the first Hite report from 1976 ( $n \sim 3000$ ) 26% or 30% orgasm regularly [15, pp. 230-231]. The sample for the lower figure includes 3% virgins and the higher excludes them as well as anorgasmic women. But here we see that 36% and 29% respectively, never reach orgasm during intercourse, even if manual stimulation is included. We commented in section 2.1.1 that studies usually show that about 5-10% never climax during intercourse in general, i.e. if clitoral stimulation has not been explicitly excluded. Thus Hite has abnormally high percentages

here. Furthermore, Hite has done another report with apparently similar methodology on women and love. But her study has been severely criticised by statisticians for having very bad methodology [54]. In this report, we have e.g. that "95% of women 'report forms of emotional and psychological harassment from men with whom they are in love relationships'" [54], which is in sharp disagreement with other studies. In conclusion, the first Hite report on orgasms should be regarded as unreliable.

To my knowledge, the studies above are all large sample studies where clitoral stimulation is clearly excluded. Among the studies in this section, only the ones by Brody et al. [40, 41], Herbenick et al. [9] and [44] have used techniques that ensure nationally representative samples.

In a non scientific survey by Dr. Delvin (n=1250 assuming everybody answered the question) 25% say they 'can usually orgasm by intercourse alone' [21]. The term 'intercourse alone' can be understood to exclude other sexual activities, including foreplay, as shown in Appendix A. We also don't know the age range or distribution (does it include women under 18 and could younger inexperienced women be overrepresented?). Furthermore, virgins and lesbians are likely included in the sample; they say the survey was 'open to women of any sexual orientation' [21, p. 4].

There are some more unscientific surveys which I don't include because they are flawed.

#### 4 Conclusion

I conclude that most women are best described as reaching orgasm by penetration and most likely without difficulty. Most women do not climax most of the time however.

#### 5 Discussion

It is not clear what exactly the women mean with clitoral stimulation during intercourse. Some alternatives are: for triggering the orgasm, continuous stimulation or occasionally to increase lubrication and arousal. In Herbenick et al. [9], 39% said having the clitoris touched during intercourse enhanced orgasm, but only 13% agreed that 'I masturbate during sex' enhanced the orgasm.

For the IFOP 2015 survey, the country with the lowest number for reaching orgasm by penetration at least 'somewhat easily' was Netherlands (56%) and the highest Italy with 74% [26]. This may be due to Italy being the most traditional of the countries, and Netherlands being the least (with regards to sexual norms), where they perhaps focus less on traditional sex. This could also explain why circumcised women seemingly have more vaginal orgasms, or it's just because they can't rely on the clitoris. Related with this is that women who are taught the vagina is important for orgasm also have more vaginal orgasms [40].

We further find in the IFOP 2015 survey that for women who are 'very satisfied' with their own body shape, 81% reach orgasm at least 'somewhat easily' by penetration. The corresponding figure for the women who are 'not satisfied' is 47% [26].

It is rather commonly stated on the internet, especially by sex educators, that the vagina in insensitive and thus not truly built for pleasure and orgasm [55, 56, 57]. They say this is because the vagina contains relatively few nerve endings, especially deeper inside. For instance, on Wikipedia [55] it says (with multiple references): 'intense sexual pleasure (including orgasm) from vaginal stimulation is occasional or otherwise absent because the vagina has significantly fewer nerve endings than the clitoris. This seems to be mainly based on the research done by Kinsey where they tested how well the women could feel gentle touch from a probe in the vagina [58]. A PhD dissertation reads 'Kinsey's, as well as Masters and Johnson's writings shatter the myth about vaginal orgasm and show that the vagina is a poor source of erotic arousal.' [17]

Komisaruk et al. [58] point out a fatal flaw in Kinsey's research: 'In arriving at their conclusion, the authors focused on the gentle tactile stimulation of the vagina and cervix, while ignoring the effect of pressure stimulation that is obviously a much more relevant stimulus during penile-vaginal intercourse. Despite the above [in his article] clear evidence of

vaginal and cervical sensibility to adequate physical stimulation, it nevertheless seems to be a rather widely-held belief that the vagina and cervix are insensate.'

Other sex researchers state (internal references omitted): 'On the basis of its supposedly low presence of sensory receptors, the vagina was considered as poorly responsive by Kinsey and Masters and Johnson as contrasted with the clitoris. During the sexual revolution, this idea was popularized, for political reasons and without scientifically sound methods.' [59]

and

"A reversal of the destructive effects of the politically driven and counterfactual 'sex education' of the past few decades (which variously has claimed that vaginal orgasm did not exist, or was rare, or was equivalent to or dependent on clitoral orgasm, or was unrelated to psychological features of the woman) is also needed." [34]

In a study [60] of 720 Dutch women, they rated their pleasure from stimulation of the 'deep vagina', 'mid vagina' and 'introitus'. Whether this can include intercourse is unclear. On average the pleasure ratings increased with depth, with not so large differences. These results are congruent with the 45 women in [61], where in most cases maximal response was from the upper vagina. This conflicts with the claim the deeper vagina is less responsive to pleasure.

It's such a common response by women to enjoy especially deep penetration, and it's a common answer why doggy-style is liked. Thus that the deep vagina can be very well responsive to pleasure follows from common sense (if the internal parts of the clitoris has anything to do with pleasure, it can only explain pleasure from the shallow vagina).

The whole nerve density reasoning surely is flawed; being more sensitive does not necessarily mean more pleasurable. Would you rather get massaged on your more sensitive fingertips and hands [62, 63] or on the less sensitive back? Consider also a study where they used mild electrical stimulation to determine sensitivity. They found that the women were more sensitive on the back of the hand as well as on the skin on the stomach than the clitoris [64, 58].

I thus conclude that what some 'sex experts' often claim is bogus and does not match descriptions by women at large.

#### A Appendix

Here I show that terms like 'solely by penetration', 'penetration alone' and 'intercourse alone' are understood differently by different people. For instance in [37] 'intercourse alone' means intercourse without simultaneous clitoral stimulation. Others use the term to exclude other sexual activities, including foreplay, kissing and other touching like breasts or clitoris (before and during intercourse). It is thus possible to say one can reach orgasm by penetration without stroking the clitoris at the same time, even though one can't orgasm by penetration alone. Below are excerpts of such examples. This makes studies and polls with such questions harder to interpret if they are not clearly defined.

"While some women are able to orgasm solely from intercourse, many others need clitoral stimulation to reach the 'Big O.' Some women need other stimulants, like touching and kissing." [65]

'In most cases, woman does not reach orgasm solely by penetration of the penis into the vagina; there is a need for foreplay for passion.' [66]

'Foreplay is seriously underestimated by men, most women won't come solely by penetration. Foreplay and going on her is what gonna make the most difference between having great or okay sex.' [67]

'Only 168 participants (31.4%) reported to have achieved orgasm with penovaginal intercourse alone, whereas the remaining 367 participants (68.6%) reported that they needed additional activities/maneuvers to achieve orgasm. Licking/kissing/light biting certain body parts was reported as the most common reported additional activity (32.43%) which helped the participants to reach orgasm.' [68]

'jane: why is intercourse with my boyfriend sometimes painfull? mary sue: probably because you are not engaging in enough foreplay before hand as most women cannot climax from penetration alone and need other means of arousal before the fact, espicially clitoral stimulation.' [69]

'Fewer than 20 percent of women have orgasms from vaginal penetration alone. Most women need kissing, touching, nipple and clitoral stimulation, and other foreplay to become fully aroused, so that orgasm is more likely.' [70]

'Give importance to foreplay: Keep in mind that intercourse alone cannot lead to an epic orgasm. You need to dedicate enough time to foreplay. ... To help your woman get multiple orgasms, help her to get aroused with manual and oral stimulation. For many women oral sex is the ultimate way to get aroused, so get into the act before the real action.' [71]

'If you truly want to satisfy your woman and give her the best love making experience, you need to dedicate enough time to foreplay. Intercourse alone cannot lead to an epic orgasm. If you can master the art of arousing her in a slow and steady manner, chances are that she will last longer for the same.' [72]

'intercourse alone may satisfy many men, but it satisfies fewer women, so even with first-time intercourse, you probably don't want that to be the only sexual activity you're doing for her' [73]

'Some women have orgasms through vaginal penetration (intercourse) alone, but many women need added stimulation. This can include stimulation from applying lubrication or touching the vulva. It can also include clitoral stimulation through masturbation and oral sex, or having the breasts or inner thighs stroked.' [74]

#### References

- [1] Wallen K. Commentary on Puts' (2006) review of the case of the female orgasm: Bias in the science of evolution. Archives of Sexual Behavior. 2006; 35(6): 633-636. https://doi.org/10.1007/s10508-006-9100-0
- [2] Black CJ, Patch EA, Taylor D. Female Orgasm and In-Pair Copulation. In: Shackelford T., Weekes-Shackelford V. (eds) Encyclopedia of Evolutionary Psychological Science. Springer, Cham; 2019. p. 5. https://doi.org/10.1007/978-3-319-16999-6\_3665-1
- [3] Welling L. Female orgasm. In V. A. Weekes-Shackelford, T. K. Shackelford, & R. D. Hansen (Eds.), Evolutionary perspectives on human sexual psychology and behavior. New York: Springer; 2014. p. 224. https://doi.org/10.1007/978-1-4939-0314-6
- [4] Mintz L. 2018. Orgasm Gap: Picking
  Up Where the Sex Revolution Left Off.
  https://www.psychologytoday.com/us/
  blog/stress-and-sex/201805/orgasm-gappicking-where-the-sex-revolution-left
- [5] Breslaw A, Khidekel M, Ruiz M. 2015. Cosmo Survey: Straight Single Women Have the Fewest Orgasms. https://www.cosmopolitan.com/sex-love/news/a37812/cosmo-orgasm-survey
- [6] Mintz L. 2018. Closing the Orgasm Gap: Tips for Personal and Culture Change. https://www.psychologytoday.com/us/blog/stress-and-sex/201803/closing-the-orgasm-gap-tips-personal-and-culture-change
- [7] Mintz L. 2017. Sexual Communication: The Bedrock to Make Your Bed Rock. https://www.psychologytoday.com/us/blog/stress-and-sex/201712/sexual-communication-the-bedrock-make-your-bed-rock

- [8] Mahar EA, Mintz LB, Akers BM. Orgasm Equality: Scientific Findings and Societal Implications. Current Sexual Health Reports. 2020; 12: 24-32. https://doi.org/10.1007/s11930-020-00237-9
- [9] Herbenick D, Fu TJ, Arter J, Sanders SA, Dodge B. Women's Experiences With Genital Touching, Sexual Pleasure, and Orgasm: Results From a U.S. Probability Sample of Women Ages 18 to 94. Journal of Sex & Marital Therapy. 2018; 44(2): 201-212 https://doi.org/ 10.1080/0092623X.2017.1346530
- [10] White T. 2014. Let's talk about sex. [interview] https://archief.ukrant.nl/magazine/lets-talk-about-sex-with-elisabeth-lloyd
- [11] Lloyd E. The Case of the Female Orgasm. Bias in the Science of Evolution. London: Harvard University Press; 2005.
- [12] Dingfelder SF. Understanding Orgasm. Monitor on Psychology. 2011; 42(4): 42. Available online: https://www.apa.org/monitor/2011/04/orgasm
- [13] Castleman M. 2009. The Most Important Sexual Statistic. https://www.psychologytoday.com/us/blog/all-about-sex/200903/the-most-important-sexual-statistic
- [14] Pinsky D. 2018. I can't orgasm from intercourse and it's ruining my relationship!. https://www.scarleteen.com/article/advice/i\_cant\_orgasm\_from\_intercourse\_and\_its\_ruining\_my\_relationship
- [15] Hite S. Third printing. The Hite report. A Nationwide Study of Female Sexuality. New York: Dell Publishing; 1981. See p. 585 for masturbation.
- [16] Mah K, Binik YM. The nature of human orgasm: a critical review of major trends. Clinical Psychology Review. 2001; 21(6): 823–856. https://doi.org/10.1016/s0272-7358(00)00069-6

- [17] Lavie M. Experiences and Representations of the Presence and Absence of Female Orgasm. [doctoral dissertation]. Ben-Gurion University of the Negev; 2004. p. 25 https://discovery.ucl.ac.uk/id/eprint/10103868/1/0rgasm.pdf
- [18] Séguin LJ, Rodrigue C, Lavigne J. Consuming Ecstasy: Representations of Male and Female Orgasm in Mainstream Pornography. The Journal of Sex Research. 2018; 55(3): 348-356. https://doi.org/10.1080/00224499.2017.1332152
- [19] Fugl-Meyer KS, Öberg K, Lundberg PO, Lewin B, Fugl-Meyer A. On orgasm, sexual techniques, and erotic perceptions in 18- to 74-year-old Swedish women. *The Journal of Sexual Medicine*. 2006; 3(1): 56–68. https://doi.org/10.1111/j.1743-6109.2005.00170.x
- [20] Bischof-Campbell A, Hilpert P, Burri A, Bischof K. Body Movement Is Associated With Orgasm During Vaginal Intercourse in Women. The Journal of Sex Research. 2019; 56(3): 356-366. https://doi.org/10.1080/ 00224499.2018.1531367
- [21] Delvin D, Webber C. 2017. Orgasms in UK
  Women an Online Survey. [pdf document].
  https://www.fpa.org.uk/sites/default/
  files/orgasms-in-women-an-onlinesurvey.pdf [Web archived link here]
- [22] Hoy M, van Stein K, Strauss B, Brenk-Franz K. The Influence of Types of Stimulation and Attitudes to Clitoral Self-stimulation on Female Sexual and Orgasm Satisfaction: a Cross-sectional Study. Sexuality Research and Social Policy. 2021. https://doi.org/10.1007/s13178-021-00618-2
- [23] Kammerer-Doak D, Rogers RG. Female sexual function and dysfunction. Obstetrics and Gynecology Clinics of North America. 2008; 35(2): 169-183. https://doi.org/10.1016/j.ogc.2008.03.006

- [24] https://www.drlauriemintz.com/becomingcliterate. Retrieved Nov 2021.
- [25] https://www.ifop.com/en/who-we-are-2/. Retrieved July 2021.
- [26] Ifop. November 2015. Ifop pour CAM4. International survey published on the occasion of the World Orgasm Day. [see pdfs at the bottom of the page] https://sv.cam4.com/insights/year-of-the-female-orgasm
- [27] Ifop. December 2015. Communiqué de presse

   Enquête de l'Ifop pour CAM4. [survey report] https://www.ifop.com/wp-content/uploads/2018/03/3243-1-study file.pdf
- [28] Ifop. December 2014. Les Françaises et l'orgasme. Enquête publiée à l'occasion de la journée mondiale de l'orgasme. Ifop pour CAM4. [survey report] https://www.ifop.com/wp-content/uploads/2018/03/2886-1-study\_file.pdf
- [29] Ifop. December 2015. Les Françaises, Bonnes Dernières Dans La Course a L'orgasme !. https://www.ifop.com/wp-content/uploads/2018/03/3243-1-annexe\_file.pdf
- [30] Herbenick D, Reece M, Schick V, Sanders SA, Dodge B, Fortenberry JD. Sexual behavior in the United States: results from a national probability sample of men and women ages 14-94. The Journal of Sexual Medicine. 2010; 7 Suppl 5:255-265. https://doi.org/10.1111/j.1743-6109.2010.02012.x
- [31] Tenga. 2019. Tenga 2019 Self-Pleasure Report. p. 6. http://www.feelmore.global/. Retrieved Dec 2019. [Web archived link here]
- [32] Carvalheira A, Leal I. Masturbation Among Women: Associated Factors and Sexual Response in a Portuguese Community Sample. Journal of Sex & Marital Therapy. 2013; 39(4): 347-367. https://doi.org/10.1080/0092623X.2011.628440

- [33] Herbenick D, Bowling J, Fu T-C, Dodge B, Guerra-Reyes L, Sanders S. Sexual diversity in the United States: Results from a nationally representative probability sample of adult women and men. *PLoS ONE*. 2017; 12(7): e0181198. https://doi.org/10.1371/journal.pone.0181198
- [34] Brody S. Vaginal orgasm is associated with better psychological function. Sexual and Relationship Therapy. 2007; 22(2): 173-191. https://doi.org/10.1080/14681990601059669
- [35] Shirazi T, Renfro KJ, Lloyd E, Wallen K. Women's Experience of Orgasm During Intercourse: Question Semantics Affect Women's Reports and Men's Estimates of Orgasm Occurrence. Archives of Sexual Behavior. 2018; 47(3): 605-613. https://doi.org/10.1007/s10508-017-1102-6
- [36] Kontula O, Miettinen A. Determinants of female sexual orgasms. Socioaffective Neuroscience & Psychology. 2016; 6(1). https:// doi.org/10.3402/snp.v6.31624
- [37] Powers C. FemaleOrgasm from Importance, Partnertercourse: Characteristics, andHealth.[PhD dissertation]. University of North Texas; 2012. https://digital.library.unt.edu/ark: /67531/metadc149654/m2/1/high res d/ dissertation.pdf
- [38] Krejčová L, Kuba R, Flegr J, Klapilová K. Kamasutra in Practice: The Use of Sexual Positions in the Czech Population and Their Association With Female Coital Orgasm Potential. Sexual Medicine. 2020; 8(4): 767-776. https://doi.org/10.1016/j.esxm.2020.07.003
- [39] Darling CA, Davidson JK, Cox RP. Female Sexual Response and the Timing of Partner Orgasm. Journal of Sex & Marital Therapy. 1991; 17(1): 3-21. https://doi.org/10.1080/ 00926239108405464

- [40] Brody S, Weiss P. Vaginal Orgasm Is Associated with Vaginal (Not Clitoral) Sex Education, Focusing Mental Attention on Vaginal Sensations, Intercourse Duration, and a Preference for a Longer Penis. The Journal of Sexual Medicine. 2010; 7(8): 2774–2781. https://doi.org/10.1111/j.1743-6109.2009.01469.x
- [41] Brody S, Weiss P. Simultaneous Penile-Vaginal Intercourse Orgasm is Associated with Satisfaction (Sexual, Life, Partnership, and Mental Health). The Journal of Sexual Medicine. 2011; 8(3): 734-741. https://doi.org/10.1111/j.1743-6109.2010.02149.x
- [42] Burri AV, Cherkas L, Spector TD. Genetic and environmental influences on self-reported G-spots in women: a twin study. The Journal of Sexual Medicine. 2010; 7(5): 1842-1852. https://doi.org/10.1111/j.1743-6109.2009.01671.x
- [43] Ifop. https://www.cam4.com/biz/en/insights/who-is-faking-it/. Retrieved July 2021.
- [44] Richters J, Visser R, Rissel C, Smith A. Sexual practices at last heterosexual encounter and occurrence of orgasm in a national survey. *The Journal of Sex Research.* 2006; 43(3): 217-226. https://doi.org/10.1080/00224490609552320
- [45] Same link as [28]. The document refer to another study (ACSF) conducted 1992 in France on a random sample of 20,000 women. p. 13.
- [46] Puts DA. Of Bugs and Boojums: Female Orgasm as a Facultative Adaptation. Archives of Sexual Behavior. 2007; 36(3): 337–339. https://doi.org/10.1007/s10508-007-9209-9
- [47] Okonofua FE, Larsen U, Oronsaye F, Snow RC, Slanger TE. The association between female genital cutting and correlates of sexual and gynaecological morbidity in Edo State, Nigeria. BJOG: An International Journal of Obstetrics & Gynaecology. 2003; 109(10):

- 1089-1096. https://doi.org/10.1111/j.1471-0528.2002.01550.x
- [48] World Health Organization. Female genital mutilation. https://www.who.int/en/news-room/fact-sheets/detail/female-genital-mutilation [Updated 2019-01-31; Accessed 2019-11-29].
- [49] World Health Organization. EliminatingFemalegenital mutilation. An in-[report]. 2008. teragency statement.25. https://apps.who.int/iris/ bitstream/handle/10665/43839/ 9789241596442\_eng.pdf; jsessionid= 794DF4861B19B42D8F09E735AA51BC23?sequence=
- [50] Paterson LQP, Davis SN, Binik YM. Female genital mutilation/cutting and orgasm before and after surgical repair. Sexologies. 2012; 21(1): 3-8. https://doi.org/10.1016/j.sexol.2011.09.005
- [51] Catania L, Abdulcadir O, Puppo V, Verde JB, Abdulcadir J, Abdulcadir D. Pleasure and Orgasm in Women with Female Genital Mutilation/Cutting (FGM/C). The Journal of Sexual Medicine. 2007; 4(6): 1666-1678. https:// doi.org/10.1111/j.1743-6109.2007.00620.x
- [52] Lightfoot-Klein H. The sexual experience and marital adjustment of genitally circumcised and infibulated females in the Sudan. *The Journal of Sex Research*. 1989; 26(3): 375-392. https://doi.org/10.1080/00224498909551521
- [53] de Bruijn G. From masturbation to orgasm with a partner: How some women bridge the gap—and why others don't. Journal of Sex & Marital Therapy. 1982; 8(2), 151-167. https://doi.org/10.1080/00926238208405819
- [54] Lohr SL. Sampling: Design and Analysis. Duxbury Press; 2010. pp. 1-2. https://silo.pub/sampling-design-and-analysis.html

- [55] https://en.wikipedia.org/wiki/ Orgasm#Females. Retrieved June 2021.
- [56] Wall S, Corinna H. Quickies: Sexual Anatomy. https://www.scarleteen.com/article/disability\_quickies/quickies\_sexual\_anatomy. Retrieved August 2021.
- [57] https://goaskalice.columbia.edu/ answered-questions/ways-woman-orgasmduring-intercourse. Retrieved August 2021. [Web archived link here]
- [58] Komisaruk BR, Frangos E, Whipple B. Hysterectomy improves sexual response? Addressing a crucial omission in the literature. *Journal of minimally invasive gynecology.* 2011; 18(3): 288–295. https://doi.org/10.1016/j.jmig.2011.01.012
- [59] Jannini EA, Rubio-Casillas A, Whipple B, Buisson O, Komisaruk BR, Brody S. Female orgasm(s): one, two, several. The Journal of Sexual Medicine. 2012; 9(4): 956-965. https://doi.org/10.1111/j.1743-6109.2012.02694.x
- [60] Bronselaer G, Callens N, De Sutter P, et al. Self-assessment of genital anatomy and sexual function within a Belgian, Dutch-speaking female population: a validation study. *The journal of sexual medicine*. 2013; 10(12): 3006–3018. https://doi.org/10.1111/jsm.12326
- [61] Alzate H, Londoño ML. Vaginal erotic sensitivity. Journal of sex & marital therapy. 1984; 10(1): 49-56. https://doi.org/10.1080/00926238408405789
- [62] Yuhas D. 2012. Skin-Deep Science: Find Your Sensitive Side. https://www.scientificamerican.com/article/bring-science-home-sensitive-skin/. Retrieved June 2021.
- [63] https://www.scienceworld.ca/resource/tactile-sensitivity/. Retrieved June 2021.

- [64] Weijmar Schultz WC, van de Wiel HB, Klatter JA, Sturm BE, Nauta J. Vaginal sensitivity to electric stimuli: Theoretical and practical implications. Archives of Sexual Behavior. 1989; 18(2): 87-95. https://doi.org/10.1007/BF01543115
- [65] https://romancemamalindsay.wordpress.com/tag/women. Retrieved Nov 2020.
- [66] https://drseymur.az/en/xidmetler/ premature-ejaculation. Retrieved Nov 2020.
- [67] https://www.rareddit.com/r/AskMen/ comments/a15vq3/nsfw\_what\_advice\_would\_ you\_give\_an\_inexperienced. Retrieved Nov 2020.
- [68] Bhat GS, Shastry A. Time to Orgasm in Women in a Monogamous Stable Heterosexual Relationship. The Journal of Sexual Medicine. 2020; 17(2): 749-760. https:// doi.org/10.1016/j.jsxm.2020.01.005
- [69] https://www.urbandictionary.com/define.php?term=foreplay. Retrieved Nov 2020.
- [70] https://mydoctor.kaiserpermanente.org/ncal/structured-content/Health\_Topic\_Difficulty\_with\_Arousal\_or\_Orgasm\_in\_Women\_-\_0bGyn.xml?co=%2Fregions%2Fncal.Retrieved Nov 2020.
- [71] https://www.thehealthsite.com/sexual-health/how-to-give-your-woman-multiple-orgasms-185463. Retrieved Nov 2020.
- [72] https://m.dailyhunt.in/news/india/ english/stressbuster-epaper-strbusen/ 8+ways+to+give+your+woman+immense+ pleasure+in+bed-newsid-74669103. Retrieved Nov 2020.
- [73] https://www.versa-networks.jp/you-can-easily-have-a-look-at-in-which-the-some. Retrieved Nov 2020.

[74] https://cancerqld.org.au/wp-content/uploads/2015/11/sexuality-intimacy-and-cancer.pdf. Retrieved Nov 2020.